

REMARKS

Entry of the foregoing and reconsideration of the subject application are respectfully requested in light of the amendments above and the comments which follow.

Claims 1-14 were pending in this application. In this response, claims 1 and 7 are amended and no claim is canceled or added. Thus, claims 1-14 remain pending.

Support for the foregoing amendments can be found, for example, in at least the following locations in the original disclosure: the original claims and the specification, page 6, paragraph 22.

Summary of Examiner Interview

As an initial matter, Applicants express gratitude to Examiner Kong and his supervisor, Thomas Black, for the courtesies extended Applicants' attorney during the recent interview of June 22, 2010. During the interview, the Examiner, his supervisor, and Applicants' attorney discussed the differences between the claimed invention and the cited prior art. Specifically, it was agreed that neither U.S. Patent No. 6,616,244 to Hakkinen (hereafter "*Hakkinen*") nor U.S. Patent Publication No. 2004/0021569 to Lepkofker et al. (hereafter "*Lepkofker*") disclose at least "continuously determining the location of the mining vehicle as the mining vehicle moves in the first mine section by means of positioning performed in the wireless data communication network on the basis of the location of the at least one signal transmitting base station in the first mine section." It was further agreed that this distinction should overcome at least the current rejection. Amendments to the claims presented above are in accordance with the agreement with the Examiner.

Rejections Under 37 C.F.R. § 103

Claims 1, 2, 4-11 and 14 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Hakkinen* and *Lepkofsker* for the reasons presented at pages 2-6 of the Official Action.

Applicants respectfully traverse. Among other elements, claim 1 recites “continuously determining the location of the mining vehicle as the mining vehicle moves in the first mine section by means of positioning performed in the wireless data communication network on the basis of the location of the at least one signal transmitting base station in the first mine section.” The Examiner admits that *Hakkinen* fails to disclose at least this element of claim 1. Further, as agreed during the telephone interview, *Lepkofsker* also fails to disclose at least this element of claim 1.

Specifically, *Hakkinen* fails to disclose any signal transmitting base stations. Further, *Hakkinen* discloses only one system for determining location for each vehicle. The location of the measuring vehicle is determined mainly on the basis of pictures from at least one video camera, while the measuring vehicle utilizes an inertial measuring device arranged in the vehicle to measure the mine to map and establish known locations within the mine. *See, e.g.*, col. 4, ll. 30-42. This same means of determining location of the measuring vehicle is the only means for locating the measuring vehicle throughout all sections of the mine. The location of the mining vehicles are determined based on the markings provided in the mine by the measuring vehicle. *See, e.g.*, col. 3, l. 55 – col. 4, l. 21. Thus, the location of the mining vehicles are determined based on the same means throughout all sections of the mine. Further, neither the means for locating the measuring vehicle nor the mining vehicle include determination on the basis of the

location of at least one signal transmitting base station as part of a wireless data communication network.

Lepkofker fails to remedy at least the deficiencies of *Hakkinen* discussed above.

Lepkofker allegedly discloses a system for tracking persons or things by use of personal tracking units that include one or more accelerometers and one or more gyroscopes. *See, e.g.*, p. 1, paragraph 7. The distance and heading information for determining the location of the tracked person or thing is transmitted to a master control station for location determination. *See, e.g.*, p. 1, paragraph 7. In difficult transmission areas, powerful portable relay stations can be dropped along the way. *See, e.g.*, p. 1, paragraph 16. However, the portable relay stations only relay the transmission from the personal tracking unit to the master control station and does not transmit signals to determine the location of the mining vehicle.

As alleged by the Examiner, *Lepkofker* further allegedly discloses a check-in procedure that can utilize GPS or a triangulation scheme to calibrate the personal tracking units to a master "origin". *See, e.g.*, pp. 3 and 4, paragraphs 36 and 37. It is mentioned that the check-in procedure is to provide a known starting point or reference point and heading relative to a Master Control Station (MCS); the path of the position of the PTU is accumulated relative to this reference point. *See, e.g.*, p. 3, paragraph 34. Real-time location of the PTU is calculated by accumulating path information from the starting point. *Id.* One alternative method for accomplishing the check-in procedure is disclosed in paragraph 37 on page 4 of *Lepkofker*, which is cited by the Examiner. Once the personal tracking units are "checked-in" and calibrated, then the location of the tracked persons or things are monitored by the personal tracking units according to the method described above, which includes the use of accelerometers and gyroscopes. *See, e.g.*, p. 4, paragraph 43. Therefore, the triangulation

scheme mentioned in *Lepkofker* at least fails to disclose “continuously determining the location of the mining vehicle as the mining vehicle moves in the first mine section” as recited in claim 1. Thus, even if, *arguendo*, the combination of *Hakkinen* and *Lepkofker* were proper, which Applicants do not necessarily agree, the combination would fail to disclose or render obvious each and every element of the claims.

Further, claim 7 recites a system for monitoring the location of a mining vehicle in a mine having limitations similar to the limitations discussed above. Specifically, claim 7 recites “the location of the mining vehicle as the mining vehicle moves in the first mine section is arranged to be continuously determined using positioning performed in the wireless data communication network on the basis of the location of the at least one signal transmitting base station in the first mine section.” At least this element is not disclosed or obvious over *Hakkinen* or *Lepkofker* or any combination thereof, for at least the reasons presented above with regards to claim 1.

Therefore, no *prima facie* case of obviousness has been established. Dependent claims 2-6 and 8-14, which depend from claim 1 or 7, respectively, are also not obvious for at least the reasons for claims 1 and 7. For at least these reasons the rejection should be withdrawn.

Claim 3 is rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over *Hakkinen* in view of *Lepkofker* as applied to claim 1 above, and further in view of U.S. Patent No. 6,480,769 to Kageyama (hereafter “*Kageyama*”) for the reasons presented at page 6 of the Official Action.

Claims 12 and 13 are rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable *Hakkinen* and *Lepkofker* as applied to claim 1 above, and further in view of U.S. Patent No.

6,839,560 to Bahl et al. (hereafter "*Bahl*") for the reasons presented at page 7 of the Official Action.

Applicants respectfully traverse these rejections. Claims 3 and 12-13 each depend on claim 1. As presented above, both *Hakkinen* and *Lepkofker* at least fail to disclose or render obvious all of the elements recited in claim 1. Further, *Kageyama* and *Bahl* appear to be relied upon by the Examiner solely for elements recited in claims 3 or 12-13, respectively, and *Kageyama* and *Bahl* fail to remedy at least the deficiencies of *Hakkinen* and *Lepkofker* with regard to claim 1. Therefore, for at least this reason no combination of *Hakkinen*, *Lepkofker*, *Kageyama* and *Bahl* render obvious all of the elements recited in claims 3 or 12-13. Accordingly, Applicants respectfully request withdrawal of the rejections.

CONCLUSION

From the foregoing, further and favorable action in the form of a Notice of Allowance is earnestly solicited. Should the Examiner feel that any issues remain, it is requested that the undersigned be contacted so that any such issues may be adequately addressed and prosecution of the instant application expedited.

Respectfully submitted,

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Date: June 30, 2010

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